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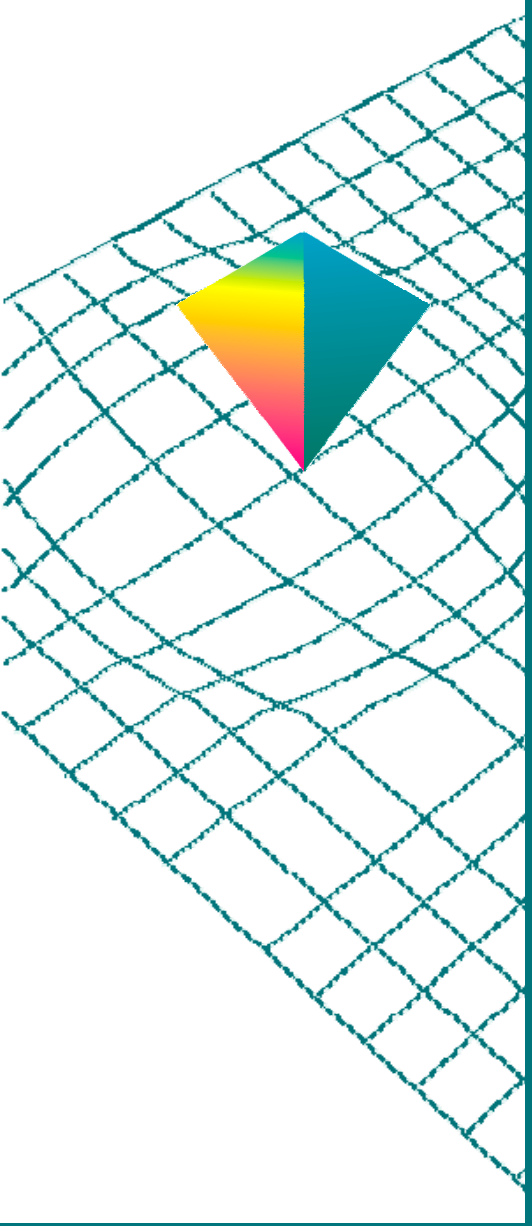

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50. Internationales Wissenschaftliches Kolloquium
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C. V. Ferreira / L. P. C. Andrade

Modeling the Injection Molded Products Development Process according Simultaneous Engineering approach focusing the Knowledge Management in the SENAI Cimatec

ABSTRACT

The injection molded components is developed in a fragmented environment considering the information multidisciplinary and interdisciplinary, tacit knowledge and explicit knowledge. [2]. The Cimatec – Technology and Manufacturing Integrated Center of SENAI BA – Brasil – develop consultancy to companies developing plastic products considering the following phases: product design, mold project, mold manufacturing and try-out. To manipulate the information and to consider the distinct competences of the human resources involved in this activity, SENAI Cimatec is structuring the product development process. In this scenario, this article introduces the modeling stages of the injection molded product development process according the Engineering Simultaneous approach.

In the literature many researches developed methodologies to support the injection molded product [2] [4] [5] [6]. These methodologies are general. A company model is a consistent and complementary set of models describing several aspects of an organization and with the objective of assisting the users of the company in some purpose These models are constituted with the objective of: acquire and to register knowledge for posterior use; rationalize and to guarantee the information flux; project and to specify functions, behaviors, information, communication of the company; simulate and to analyze parts, aspects and operation of the company; decide about the operations and the organization of the company; and, develop softwares of an integrated form. The companies model can present the following benefits: construct the company culture, vision and language, to formalize the know-how, the knowledge, the practice and the company memory, to support the decisions to improve and to control the operations, to include the facilities of computer science and others. [3]

The modeling process of injection molded product development process in SENAI Cimatec involved the following phases: i) to compose and train of the team involved in the modeling process; ii) to define the macro process; iii) to define the information detailed level; iv) to detail the processes and activities; v) to elaborate the manual of product development; and, vi) to develop the product development management process. The methodology to model the design process was

accomplished based on the available information in [1] introduced in EMBRAER. In the last phase, this modelling process involved the management process of product development, considering the PMI (Project Management Institute) approach. The product development model of SENAI Cimatec can be observed in the illustration 1.The model developed is composed by stages and activities. As "inputs" of these processes the model consider Operational Standards, Jobs Instructions and Design Tools. The operational standards and the jobs instructions constitute technical rules. Design tools constitute means to assist the team involved in the project to develop the product. As "outputs" of this process it has documents, contracts, reports and the product of the development. This product can be a rendering, 2D/3D model, resistance analysis, mold project, try-out report, injection mold and others information. The design model will allow to use the "lessons learned" during the products development in new developments. In other words, a solution that contemplates the needs, design requisites, design constraints and design knowledge can be stored, shared and used in new development.

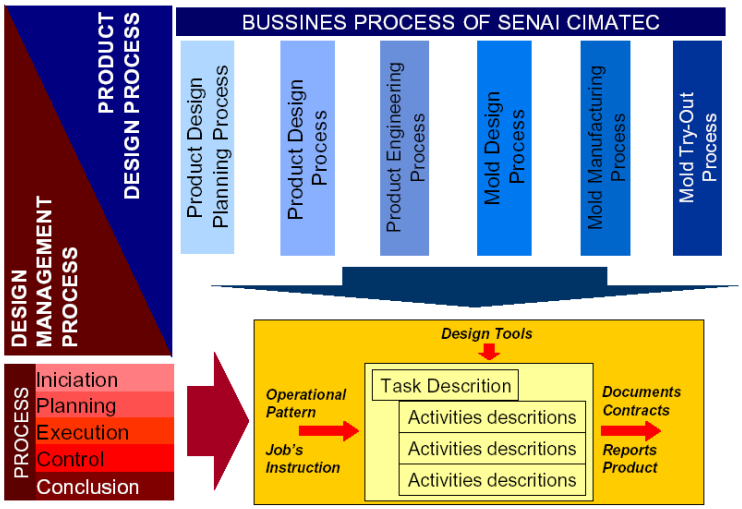

Figure 1. Injection Molded Product Design Process of SENAI CIMATEC

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